

## THE SEVEN SINS OF FUNDAMENTAL GLOBAL INVESTING

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According to Wikipedia, the seven deadly sins, also known as the capital vices or cardinal sins, are a classification of vices that were originally used in early Christian teachings to educate and instruct followers concerning (immoral) fallen man's tendency to sin. The Roman Catholic Church divided sin into two principal categories: 'venial', which are relatively minor and the more severe 'capital' or mortal sin. Mortal sins destroyed the life of grace, an unusual description of life in the markets and created the threat of eternal damnation unless absolved, by beating the benchmark, even if by luck<sup>1</sup>!

In this paper, the seven deadly sins are applied to the activity of fundamental global equity investment management. An important distinction is drawn between tracker funds on one hand (such as Vanguard), who simply aim to match the benchmark before fees and quantitative platforms (such as Renaissance, Citadel, DE Shaw) who successfully generate alpha with very high turnover.

Several other writers have presented their Seven Sins of Fund Management from various perspectives, perhaps most notably James Montier at Dresdner Kleinwort Wasserstein in 2005<sup>2</sup>, from a behavioural perspective, but these relate specifically to fundamental active equity management

### 1. Lust (luxuria)

*Markowitz's assumption that risk equals standard deviation of returns<sup>3</sup> stems from a mechanistic Newtonian desire to model the real world and leads to a misrepresentation of real risk in portfolios.*

Risk. It's a word thrown around so frequently in the investment world. But what actually is it?

One of the Oxford English Dictionary definitions defines risk as; '*expose to danger or loss.*' This section is concerned with the quantification of this exposure and what that means for portfolio management.

Most discussions of risk can trace their origins back to the empiricism of David Hume and with that the philosophical origins of probability.

*'Though there be no such thing as **Chance** (author's emphasis) in the world; our ignorance of the real cause of any event has the same influence on the understanding, and begets a like species of belief or opinion.'*<sup>4</sup>

The Newtonian influence is clear. Just as Newton believed if you knew the position and velocity of every atom in the universe you could accurately predict the complete future<sup>5</sup>, so probability only exists because of our lack of knowledge. Such subjective probability is neatly summarised by Bruno de Finetti;

*'My thesis, paradoxically, and a little provocatively, but nonetheless genuinely, is simply this: **PROBABILITY DOES NOT EXIST** (author's emphasis)'*<sup>6</sup>

By eliminating probability, effectively the assumption of perfect knowledge, and introducing a host of other assumptions, such as rationality, economic theory seeks to imitate the theories of the natural

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sciences, aiming to establish timelessly valid generalisations that can be used reversibly to explain and predict economic phenomena<sup>7</sup>. Since the advent of quantum mechanics, even theoretical physicists have had to come to terms with the fundamental nature of probability in nature and its incompatibility with Newton's Laws.

Heavily influenced by this subjectivist perspective<sup>8</sup>, the early pioneers of modern portfolio theory (MPT)<sup>9</sup> such as Harry Markowitz, Merton Miller and William Sharpe asked themselves the initial question – what is risk? When they came up with the simple hypothesis that investors get rewarded (with higher returns) for taking on greater risk. For this idea to go any further, though, they had to have a way of quantifiably measuring risk.

They came up with a very simple, if controversial, solution: risk (of any asset) can be measured by the standard deviation of historic returns (of that asset). In other words, the more volatile the returns from a given asset the more risky it is.

From this simple assumption and several others, including markets being efficient, that one measure of risk applies to all investors, that there are no transactions costs, grew MPT and its flagship, the risk-gauging capital asset pricing model, to this day the cornerstones of the financial economics curriculum in schools, investment associations and financial institutions.

For their work in the field of understanding how asset prices behave, Dr Markowitz, Dr Miller and Dr Sharpe shared the 1990 Nobel Prize in economics. Building upon MPT and work by Robert C Merton and others, Fisher Black and Myron Scholes published a paper in 1973<sup>10</sup> introducing the options pricing model that bears their name. Its basic assumption is that equities move randomly; that is, their returns are distributed according to the normal bell curve, which charts the frequency of random walk outcomes.

This ability to understand the world statistically through the Gaussian distribution<sup>11</sup> is essential to the subjectivist interpretation allowing us to tame the uncertainty of markets. The model assumes that volatility does not change much, and prices options as a function of the historic volatility of the underlying asset, a hypothesis tested not only by reality but also Benoit Mandelbrot and his fractal mathematics<sup>12</sup>. It well in normal market conditions, where changes in volatility were gradual, but if volatility abruptly increased it would break down.

Best selling financial author Roger Lowenstein, in *When Genius Failed*, his book on the US\$4 billion collapse of LTCM, said: *"Every investment bank, every trading floor on Wall Street, was staffed by young, intelligent PhDs, who had studied under Merton, Scholes or their disciples. The same firms that spent tens of millions of dollars per year on expensive research analysts – i.e. stock pickers - staffed their trading desks with finance majors who put capital at risk on the assumption that the market was efficient, meaning that stock prices were ever correct and therefore that stock picking was a fraud."*

The ultimate irony about LTCM - the penultimate one being its name - is that two of its partners, Dr Merton and Dr Scholes, proponents of the Efficient Market Theory, built a model to take advantage of arbitrage opportunities created by market inefficiencies.

In the aftermath of the 1987 crash, Harvard economics professor Lawrence Summers, later a US Treasury Secretary, remarked to *The Wall Street Journal*, *"The efficient market hypothesis is the most remarkable error in the history of economic theory."*

And all of this from the simple assumption that volatility equalled risk. What went wrong? The dictionary definition of risk is the possibility of loss. Applied to financial markets, risk should mean the probability that an investment, whether a portfolio or an individual asset, will perform worse than expected.

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The question now becomes; Who's expectation? After all, expectation is a subjective quantity. In investing, expectation 'belongs' to the investor. Everyone is entitled to have a different expectation for their investments. It is ludicrous to suggest that Warren Buffett and a day-trader would see eye-to-eye on a particular stock, especially if they both happened to be holding it at the same time. One wants it to grow at a steady pace over many years, while the other would be happy with a half-point bump before lunch. Yet, MPT posits they should see eye-to-eye, defining risk as the objective historic volatility of a given stock. Furthermore, asset price returns are not normally distributed. In the real world, the supposedly well-distributed curve has a lump at each end, known as the fat tail. The tails describe extreme events - such as Russia's 1998 debt default that brutally exposed LTCM's weakness - which are not as rare as the theory says they should be.

These are not new observations, but the speed at which the old established theories are debunked is agonizingly slow. The likes of Warren Buffett, one suspects does not calculate his risks by looking at historic stock price movements, must hope that the pace of change remains slow and that the Nobel committee continues to bestow its awards on academics sitting in their ivory towers, far removed from the messy world of nuts, bolts and corporate profits. As Mr Buffett himself notes:

*"Over time, markets will do extraordinary, even bizarre, things. A single, big mistake could wipe out a long string of successes. We therefore need someone genetically programmed to recognise and avoid serious risks, **including those never encountered before** [Mr Buffett's emphasis]. Certain perils that lurk in investment strategies cannot be spotted by use of the models commonly employed today by financial institutions."<sup>13</sup>*

Ultimately, the only reliable model of the real world is the real world itself. Donald Runsfeld called them the 'unknown unknowns', University of Chicago economist Eugene Fama, often thought of as the father of efficient market theory, famously remarked, "Life always has a fat tail"<sup>14</sup>.

## 2. Gluttony (gula)

*In an orgy of overtrading, which is often mistaken to constitute active management, time horizons are getting ever shorter for both managers and investors. Expect underperformance even from managers with skill.*

*"If you try to beat the index, which is what most people do, then you are thinking about what will do best over the next twelve months. That's the most efficient part of the market. Most businesses have a reasonably good idea of their prospects over the ensuing twelve months, and their expectations are generally incorporated into stock market prices. People who try to outguess them are rolling dice."<sup>15</sup>*

Analogies of swans, whether black or white, are all the rage in financial circles. Here is one you perhaps haven't heard. Think of the proverbial swan, sailing seemingly serenely across the surface of a lake, while obscured by the water its legs are paddling like crazy. The performance of certain mutual funds brings to mind an inverted swan: with its big fleet flapping in the air, frantic activity is there for all to see, but the poor thing is going nowhere, and probably drowning.

The average holding period of NYSE listed stocks has fallen from 7-8 years in the mid 1950s to 11 months today.<sup>16</sup> 'Over 11 months your return is just a function of price changes. It has nothing to do with intrinsic value or discounted cash flow. It is just people punting on stocks, speculating not investing.'<sup>17</sup> John Bogle of Vanguard fame presented findings to a US Senate Committee on the average holding period of professional investors and showed a similarly dramatic decline in holding period.<sup>18</sup>

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Put simply, paddling to and fro, turning over the names in your portfolio, is not in itself a measure of achievement. Indeed it is often counter productive. A 2003 research report by CSFB<sup>19</sup> of US mutual fund data from Morningstar revealed that funds with lower turnover perform better over all periods of more than two years.

According to the study, funds that turned over less than 20 per cent of their portfolio returned 179% over ten years. This compared with 143% return for funds that turned over 20-50 per cent of their portfolio a year, 130% for those that turned over between 51 and 100 percent of their portfolio, and a miserable 112% return for those that turned over more than 100 per cent. In other words, funds that did best were holding on to their investments for an average of at least five years.

This simple statistic raises two basic questions when choosing an active fundamental manager. Why does taking a longer-term view yield better results? The higher transaction costs associated with high turnover can only explain a smidgen of the divergence. And why, given the clear facts, does anyone invest in higher turnover funds?

The explanation for the attraction to many of the higher-turnover funds is rooted in the often-irrational characteristics of human behaviour; specifically a phenomenon known as “myopic loss aversion”, a term coined by economists Shlomo Benartzi and Richard Thaler in 1995.<sup>20</sup>

This phenomenon refers to the fact that humans are much more sensitive to losses than to gains (loss aversion) and that we compound the problem by evaluating our portfolios over short timeframes (myopia). In other words, portfolios are looked at too often, and compounding the problem, dips cause an overreaction.

Why does a longer term perspective yield better results? Investment returns reflect one’s ability to predict future share price movements. Every individual share price movement, over any time frame, is a function, in varying proportions, of the company’s profits on the one hand and market psychology on the other. Over the short term, market sentiment almost entirely influences share price movements, but over the long term profits dominate.

The difference between short term investing and long term investing is the difference between predicting how investors are going to behave versus how a company’s assets are going to behave. Roger Lowenstein pointed out about high-turnover funds in his SmartMoney column, “*They aren’t investing in stocks any more than a cheap date on Saturday night is akin to an engagement.*”

James Montier at DKW<sup>21</sup> set up a scenario to show how ridiculous the obsession with short term performance is. He created an artificial universe of 100 fund managers, each with a true alpha of 3% and a tracking error of 6%, or an information ratio of 0.5% (according to Grinold and Kahn<sup>22</sup> this would put these managers in the or close to top quartile for active US equities). These skilful artificial investors were allowed to run money using different strategies for 50 years, during which period they were subjected to market shocks. The results are illuminating:

1. The best manager had an alpha of 5.2%, the worst showed an alpha of 1%
2. In any given year, roughly **one third of managers underperformed the benchmark**  
Remember these are all skilful investors by design
3. Over 50 years such a **skilled investor should be expected to underperform** in about 15 years.  
The worst manager underperformed in 24 of the 50 years.
4. Perhaps most revealing was the risk of back-to-back underperformance. Runs of four or five years were not uncommon. **70% of managers experienced three or more consecutive years of underperformance.**

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So how does one pick these long-term winners? For guidance we turn to one of the great, albeit lesser known, stock pickers, Philip Fisher, and, specifically, to a particular question he used to ask companies - a question that so impressed former Forbes editor Jim Michaels that he composed an entire article around it. His question: "What are you doing that your competitors aren't doing yet?"

Think about it. What distinguishes truly great companies from the rest of the pack? The simple answer is innovation. But it's more complicated than that. Fisher's question not only asked about the innovation itself, but implicitly the extent to which it was a continuous process and whether it was useful innovation which competitors would copy at some point. Almost evolutionary – when asked to identify those thinkers whose influence he felt most profoundly, Charles Darwin was one of Harry Markowitz's choices.<sup>23</sup>

Arguably the greatest of Mr Fisher's disciples is Warren Buffett. His success is largely the result of skilfully combining Mr Fisher's philosophy with that of another investing heavyweight, Benjamin Graham<sup>24</sup>. While Mr Fisher's approach aimed to identify companies with great growth prospects, Mr Graham - known as the father of value investing - tore apart balance sheets to find companies that were trading below intrinsic value. As Mr Buffett himself said, "*Value investing and growth investing are joined at the hip.*"<sup>25</sup>

Combining the two philosophies results in an approach that essentially aims to buy a dollar's worth of assets at 50 cents, where that dollar of assets will grow at a consistently above average rate

### 3. Greed (avaritia)

*Over-diversification, or rather a lack of concentration in portfolios*

MPT teaches that diversification reduces risk. But by how much?

The power of diversification should not be underestimated, highlighted by the table below. The table below is based on certain assumptions but particularly that each input (it is equally applicable to companies, internal teams or a multimanager programme) takes one unit of risk to generate one unit of return, in other words has a constant information ratio of 1.

Number of teams/company/funds	Risk at 0 Correlation	Risk at 0.1 Correlation	Risk at 0.25 Correlation
1	100	100	100
2	71	74	79
3	58	63	71
4	50	57	66
5	45	53	63

Deliberately, each team/company/fund is assumed to have an information ratio of 1 – ie a constant skill level to highlight the benefit of diversification alone<sup>26</sup>

Taking the risk at zero correlation column, with one input an investor can expect to be exposed to 100% of the risk. However, as further uncorrelated inputs are added the risk declines to the point

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where at 5 inputs, risk is more than halved. The key point is that with **no improvement in the skill** from each input, risk can be reduced to less than half the original (or the corollary, leveraging my returns at the original level of risk), simply but adding diversifying inputs. As correlations between the inputs rise, so the diversification benefit falls.

Turning to the qualitative perspective, this paper suggests that there is a relationship between good long-term performance of fundamental managers and high portfolio concentration. The more concentrated portfolios tend to do better than large shallow baskets of stock.

Typical mutual funds are highly diversified, holding more than 100 stocks which perhaps is too many holdings to keep track of effectively. In the words of Warren Buffett, *'We believe that a policy of portfolio concentration may well decrease risk if it raises, as it should, both the intensity with which an investor thinks about a business and the comfort-level he must feel with its economic characteristics before buying into it.'*<sup>27</sup> A manager's lack of knowledge in each of their individual holdings means that they are more likely to bail out during a wobble, resulting in higher turnover, the sin of Gluttony, which also cuts into a fund's performance.

The above phenomenon is actually founded on the basic observation that the chance of an investment decision contributing positively to a fund's performance is proportional to the amount of time spent on making and monitoring that decision. Since there are only so many hours in the day, a fund manager with lots of holdings is going to spend less time on each decision and thus get a smaller proportion of them correct.

*"To suppose that safety-first consists in having a small gamble in a large number of different [companies] where I have no information to reach a good judgment, as compared with a substantial stake in a company where one's information is adequate, strikes me as a travesty of investment policy."*<sup>28</sup>

Of course, there is a point at which concentration starts to weaken a fund's risk-return profile. A one-stock portfolio is clearly a bad idea. But what is an optimal level to aim for?

This is where the art of portfolio management comes in. The answer is not eighteen or twenty-six, but simply: What range of stocks can that manager understand to a degree of aggressive confidence? The intuitive answer is that the perfect fund manager will be able to understand the widest range of stocks. In the real world, the key is the inverse: The perfect fund manager is the one who accepts what he doesn't know enough about, and chooses ruthlessly to exclude it. Only what is in a portfolio can determine its performance.

#### 4. Sloth (acedia)

*Sifting insight from the noise is every more difficult, in the daily deluge of information. Leave your desk and go and meet management. Understand your companies intimately.*

Warren Buffett is invariably described as a value investor, but hardly anywhere in Berkshire Hathaway's annual letter to shareholders does he make reference to intrinsic value, the holy grail of value investing.

MPT's Newtonian approach teaches that with detailed analysis of company accounts plus shrewd forecasting and conservative discount rates, one can calculate precisely the fair – or intrinsic – worth of a stock. When this amount is higher than the current share price, so the mantra goes, it's a great investment, the theory being that over time the stock market valuation will rise to meet the fair value.

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Perhaps, what has made the label so sticky is that Mr Buffett studied at Columbia University under Benjamin Graham, the father of value investing. He has never been in a hurry to dispel that label for the same reason that he remains quietly ecstatic that the efficient market hypothesis still features on most investment course syllabuses. Regarding that flawed theory, which we discussed in the sin of lust, he notes in his 2007 letter: *"If you are in the shipping business, it's helpful to have all your potential competitors be taught that the earth is flat."*

What comes across more than anything in Mr Buffett's letter to shareholders is that he is an investor in managerial talent. He claims, modestly, that he takes the easy route, *"sitting back and working through great managers."*<sup>29</sup> Terms such as *"true managerial magicians"*, *"extraordinarily talented managers"* and *"remarkable entrepreneur"*<sup>30</sup> give a very good indication of what really matters to the Oracle of Omaha.

The underlying message is that unless there has been a recent speculative surge in a stock or a company's business is in decline, most firms with great management will make good long-term investments. It is instructive that the word "manager" and its derivations are used 39 times in Berkshire's letter.

So what constitutes great management in Mr Buffett's eyes?

Energy, independent thinking and dedication, of course, but it is the less conventional that is of real interest. Mr Buffett, in the letter, relates the story of a meeting he held in the mid-1960s with National Fire & Marine Owner Jack Ringwalt at which he was due to close the sale of his company to Berkshire Hathaway.

Mr Ringwalt arrived late, explaining that he had been driving around looking for a parking meter with some unexpired time. That, for Mr Buffett, *"was a magical moment for me. I knew then that Jack was going to be my kind of manager"*.

Having scrutinised management the next step is to scrutinise the company in which one is investing. To disregard what one actually owns when dabbling in shares is a luxury you may think you can afford while the good times last. Don't get mesmerised by the reward expectations that are in the same ballpark as those won at a casino, the stock exchange's not-so-distant cousin. They don't last, ever.

The point is that it is always a good idea to know what you're buying, even, or particularly, if others don't. Most companies are sufficiently capable of presenting their best side (take the case of Enron). It is therefore more a question of working out who is wearing Speedos. *"Only when the tide goes out do you discover who's been swimming naked"*<sup>31</sup>.

The best way to quickly work out what lies beneath the surface is to get hold of a company's latest annual report, which should be available on its website. If it isn't, that is a good reason to avoid the stock anyway - either they don't want you to see it or they're dumb, both negatives.

You don't need a CFA or a holiday weekend to work it out either. Here is an interesting twelve-point guide to tearing apart an annual report in ten minutes.

No doubt many of you will find this all a bit basic but then rarely is sticking to the basics in any activity a bad idea. Note that companies which do not pass the following test are not necessarily bad investments. There will be plenty of interesting situations that slip through the net.

What this checklist tries to do is to identify companies that will make very steady, long-term investments for sensible investors who have a reasonable amount of time to dedicate to the pursuit

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of stock picking. As in astronomy, it's all about having an efficient way to decide where to point your telescope such that you give yourself a good chance of finding stars.

1. By looking at the annual report for one or two minutes are you able to understand what the company does? There are no doubt companies that are very difficult to understand but whose shares perform well. However, you may not be able to sleep comfortably at night not knowing how their success is being achieved.
2. Do you think that demand for the company's products will rise in a relatively steady fashion over the long-term? This will discount cyclical stars such as commodity and semiconductor companies that may take you on a wild ride.
3. Does the company have a reasonably dominant position in its industry? On the whole, dominance is a good thing as all sorts of good things come with it, such as economies of scale and high barriers to entry.
4. Do you think that brand value matters to the company? Brand value can add several percentage points to a company's profit margin and is a significant competitive advantage. It is therefore something that companies treasure and, in the absence of incompetence, can last forever.
5. If the company has a mission statement or a set of core values at or near the front of the annual report, do you feel that it was composed with a lot of thought? Companies who stick inane, generic statements at the front of their annual reports are not making much effort to sell themselves to you, and likely in other ways as well.
6. Does the annual report contain a table summarizing the company's 5 or 10 year financial track record, and does it show a relatively stable history? This point is partly related to the fact that companies that include clear, long-term historic data have made a conscious effort to provide useful information, and partly to check that the company has not had a volatile past.
7. In the notes to the accounts, does the list of subsidiaries cover more than two pages? The choice of two pages is fairly arbitrary, particularly since font size can vary and disclosure requirements can vary from country to country. The point is that, as with question one, it is more difficult to feel comfortable investing in complex corporate structures. At best they are difficult to understand. At worst, complex structures can be indicative of something more sinister.
8. Are there any worrying qualifications in the auditor's report? As a rule of thumb, any qualification is worrying.
9. Compared with other annual reports, do you get the impression that the company looks after its employees? Companies are nothing without their employees, and a sign that a firm appreciates this fact is heartening.
10. Does the company have a worthwhile profit margin? Profit margins vary from industry to industry, so there is no specific target rate.
11. Does the company have a strong balance sheet? As a general rule, stick to companies with net debt to equity ratios below 30 per cent. The legendary Philip Fisher<sup>32</sup> said that he never invested in highly geared companies, even if they were well run.



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12. If the company's investment program has required external finance, has this been sourced mostly with equity? Intensive fixed asset investment programs can present exciting opportunities, particularly since they can often depress profits in the short-term, resulting in share price weakness and good buying opportunities, but financing them with debt is generally a bad idea. In the cash flow statement, add together investments in subsidiaries, fixed assets and other non-current assets, and subtract "cash flow from operations". A red flag should go up if this number is less than double the amount under "increase in debt" (one or more items in the "cash flow from financing activities" section of cash flow statement). Again, this yardstick is somewhat arbitrary and there will almost certainly be specific issues that complicate the picture, but carrying out this calculation should be instructive.

Even though an annual report is a backward-looking document, it's probably the most efficient way to identify companies that are well placed to do well in the future.

Finally, to quote the Oracle of Omaha again, *"If a business does well, the stock eventually follows."*<sup>33</sup>

## 5. Wrath (ira)

*Volatility is not your enemy. It is nothing to be afraid of. In fact it's essential to make markets work. Take a dispassionate approach, ignore share prices and see portfolio return as returns of underlying businesses (companies' profits) not as share price returns.*

... or why there is no market turmoil on Vulcan.

It is hard to think of something to say about the recent upheaval in world financial markets that hasn't been said already, either this time round or following previous crashes.

History is prone to repeat itself, especially in the world of finance. This is because markets are the ultimate expression of human nature on a mass scale, and human nature, with its predilections for occasional irrational behaviour, remains constant.

Take humans out of markets, and they would be a dull affair. Were CNBC broadcasted on the planet Vulcan, for example, correspondent Spock of Logical Securities might report: *"Once again, all stocks rose today by 0.03 per cent. This is the expected rate of return, and is fixed for all stocks as our perfect foresight means there is no risk."*

*"Like yesterday, and the day before that, today's earnings results were all in line with expectations, not surprising really, given that we know exactly what the future will bring and that we all behave totally rationally."*<sup>34</sup>

It is our innate irrationality that drives markets. In fact, in many ways the sharp decline in volatility and the attendant steady rise in markets in recent years were synonymous with the hypothetical Vulcan stock market. The problem was that everyone woke up one day and remembered that we live on place called earth where it was humans who approved home mortgages to borrowers with no income, humans who securitized and rated them and humans who bought them.

Volatility represents an opportunity to the prepared, those who have done the fundamental research (see Sloth) and know their companies. In many cases the underlying businesses and management of companies swept up in general market volatility are unaffected. They continue to be well managed and in many cases their ability to generate consistent profits for shareholders over the long term remains sound. Long term investors (see Gluttony) can afford to wait and be patient and take advantage of these short term dislocations in price.

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Goldman Sachs chief executive David Viniar, in a call to investors in its funds that had been damaged by their use of computer modelling, said, "We are seeing 25 standard deviation events, several days in a row." To put this into English, he was suggesting that what had happened in markets was something that should only be expected to happen every several trillion years.

Since this in itself is absurd, because it did happen, what Viniar was admitting was that the models were flawed. But then, computers are programmed by humans, using flawed assumptions.

In this case, the problem was that computer models are not human enough. They do not take account of the impact on financial markets of their buy and sell orders, also known as the feedback effect. Self-awareness is a uniquely human trait and one that is impossible to build into computer programs right now, given our current programming skills and computer capabilities.

This imperfection in our psychology has been exacerbated by our desire to describe the world in a mechanistic, Newtonian way, rather than qualitatively, which has been shown earlier. The fact is, the uncertainty associated with market crashes cannot be defined by the bell curve as it is the sudden, unpredictable lurches in volatility that have been seen over the course of the second half of 2007 and into 2008 that represent true risk, not the normal sweeping ups and downs of the Gaussian distribution<sup>35</sup>.

## **6. Envy (invidia)**

*Benchmarks are a reference point, but are not a good starting point for portfolio construction.*

The Oxford English Dictionary defines a benchmark a standard or point of reference. All investment managers are measured against a benchmark, most global equity managers are measured against one of the various global benchmarks, produced by the likes of MCSI. These provide just that, a point of reference from which to determine whether your particular manager is worth their fee, because in today's world you can buy the benchmark performance for a few basis points.

But what exactly is benchmark performance? The benchmark is not static. It is a quantitative strategy which says, roughly, proportionally weight your portfolio to the largest companies by market capitalisation, with certain substitution rules each quarter. It is remarkable how effectively this, allocate more to the biggest, strategy works because managers find it so difficult to beat!

So it is rational for investment managers being measured from quarter to quarter to use the benchmark as the neutral (hence zero risk – see Lust) starting point, if they are managing career/mandate loss risk. Benchmark hugging is the greatest sin of all – pure cowardice. However, the question is whether this is an optimal outcome from the perspective of the client is debateable. Warren Buffet's neutral risk position, if indeed he considers such a position, is unlikely to be the S&P500 index.

The structural problem with benchmarks is that they are backward-looking by design. In effect they tell you everything about the past and nothing about the about the future prospects of the companies that comprise them.

Ross Millar, in his paper *Measuring the true Cost of Active Management by Mutual Funds*, used a methodology to estimate the proportion of a fund that simply replicated the benchmark and that which was truly active. Applying the fees to the active portion of the fund was revealing - applied to the Morningstar universe of large-cap US mutual funds, active expense ratios are found to average nearly 7%<sup>36</sup>.

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What can be learnt from this? If you want benchmark performance, buy an index fund and pay a few basis points in cost. If you want an active manager, employ a truly active manager, one who eschews benchmarks, invests with conviction, but most importantly give them time to perform (in fact, expect them to underperform).

**7. Pride (superbia)**

*Overconfidence...a quality we humans evolved to help us survive and conquer but not great when it comes to making sound predictions. Active management is prediction*<sup>37</sup>

Keynes described it as beating the gun<sup>38</sup>, but simply, its thinking you are smarter than everybody else. Poor decision-making leads to unhappy returns. Given 70% of funds underperform their benchmark in any given year, the average fund manager may actually be hardwired to make poor decisions.

**Cognitive Reflection Task (CRT)**<sup>39</sup>

1. A bat and a ball together cost \$1.10. The bat costs \$1.00 more than the ball. How much does the ball cost?
2. If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?
3. In a lake, there is a patch of lily pads. Everyday, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half the lake?<sup>40</sup>

Shane Frederick, assistant professor at Massachusetts Institute of Technology's Sloan School of Management, devised the Cognitive Reflection Test (CRT) - a set of three simple questions (see above) - designed to assess the specific cognitive ability that relates to decision-making. The test recognises that all individuals use a combination of two brain processes, which using the labels of Lieberman et al<sup>41</sup> are the "X-system" and the "C-system". The former is the default option - a spontaneous response - while the latter is reflective, requiring a deliberate, conscious effort.

The CRT was designed to measure the extent to which people are able to interrupt their more instinctive X-system response, and replace it with the slower, but more logical, C-system process, to produce the correct answer. Turns out, it is harder than you might think.

Frederick carried out the test at eleven locations on more than 3,000 individuals - mostly students - and found that they averaged 1.24 correct questions each.<sup>42</sup> His results are instructive at several levels.

For example, those who incorrectly answered the first question thought that 92 per cent of people would answer it correctly. Those that did answer it correctly thought that 62 per cent would get it right. The point here is that those whose X-system is dominant - that is the ones who answered instinctively, and therefore incorrectly - have an over-inflated sense of confidence, misreading the difficulty of challenges.

James Montier surveyed 300 fund managers<sup>43</sup> and found that they did better than average, answering nearly two questions each. But a third of them did worse than the average student.

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This doesn't indict all fund managers, but it does mean that there are many fund managers that have a hard time distinguishing between those decisions for which they are justified in making certain deductions, based on information and patterns having been correctly observed, and those that are based on an illusion of pattern.

This phenomenon is described in star pessimistic investor Nassim Nicholas Taleb's *Fooled by Randomness* (2004), a treatise on man's capacity to mistake noise for pattern, luck for skill. A former proprietary trader, Taleb considers himself one of a "*bunch of idiots who know nothing and are mistake prone, but happen to be endowed with the rare privilege of knowing it*"<sup>44</sup>.

It is this sort of honest self-reflection that we would do well to look for in other fund managers. That is, of course, if we are not prepared to indulge in some honest reflection ourselves and conclude perhaps that the most sensible thing to do is to buy an index fund.

Behavioural finance experts explain this poor decision-making in terms of our natural tendency towards overconfidence and bias. Researchers say people consistently overrate their knowledge and skill.

In their paper in the *Sloan Management Review* in 1992, J Edward Russo and Paul Schoemaker<sup>45</sup> presented the results of their tests in which securities analysts and fund managers were posed a series of questions and, in addition to being asked for a precise answer, were also asked for a range in which they were 90 per cent sure the *actual* answer resided. Obviously an accurate calibration of confidence would result in a 90% success rate, or 9 of the 10 questions correctly within the range. On average, the analysts chose ranges wide enough to accommodate the correct answer only 64 per cent of the time. Fund managers were even less successful at 50 per cent. Groups that very accurately calibrated their confidence levels included weather forecasters, bookmakers and professional bridge players. The test is below:<sup>46</sup>

	90% Confidence Range	
	Low	High
Martin Luther King's age at death in years		
Length of the Nile River in miles		
Number of countries that are members of OPEC		
Number of books in the Old Testament		
Diameter of the moon in miles		
Weight of an empty Boeing 747 in pounds		
Year in which Wolfgang Amadeus Mozart was born		
Gestation period of an Asian elephant in days		
Air distance from London to Tokyo in miles		
Deepest known point in the ocean in feet		

So how does this overconfidence among fund investors manifest itself when it comes to decisions to buy and sell mutual funds? Overconfidence impedes performance because investors consider

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outcome ranges that are too narrow. For example, if markets have fallen, investors significantly underestimate the likelihood of them bouncing. And the belief that a “hot” fund will continue to be so often becomes dogmatic.

Paradoxically, your overconfidence will prevent you from being aware of your overconfidence. Do you hear yourself saying, “No! You are wrong! I am CERTAINLY not overconfident,” in response to being so accused? If the table was not enough, here is further evidence.

Here goes. In a room of thirty people, what is the probability that two people share the same birthday? One in 100? One in 200? It can’t be more than ten per cent, can it? Well, it’s actually 71 per cent. Surprised?<sup>47</sup>

An example of erroneous perception is provided by “the Monty Hall problem”, named for the long-time host of American TV’s *Let’s Make A Deal*: you are on a game show where the objective is to win a car. The host shows you three doors and says that there is a car behind one of them and a goat behind each of the other two. He asks you to pick a door. You pick a door but it is not opened. Then the host, who knows what is behind each door, opens one of the two you didn’t pick to reveal a goat. He then offers you the chance to change your pick to the other unopened door. What should you do?

This problem was sent to Parade magazine’s Ask Marilyn column in 1990. Author Marilyn vos Savant answered that you should always switch doors as this doubled your chances of winning the car from one in three to two in three. There was an avalanche of letters to the magazine, some from writers with a PhD, saying she was wrong, and accusing her of lowering American education standards. (Incidentally, Mrs vos Savant held the Guinness world record for the world’s highest IQ from 1986 until 1989, when the ranking was abolished.)

You may think that Mrs vos Savant is wrong and that switching doors wouldn’t alter the odds. Surely, if there are two doors left, the chances are fifty-fifty either way, right? Wrong.<sup>48</sup>

The problem is that overconfidence otherwise helps us in our daily battle for survival. But while the need to appear competent and confident might help, for example, in securing a job promotion, it hinders sound decision-making in stock market investing.

Whatever your assessment of your own confidence, you would do well to remember that few people think they are below-average drivers<sup>49</sup>. Fewer still think they are below-average lovers<sup>50</sup>. To the real Schumachers and Casanovas out there, I salute you, as I suspect you can get by without really needing to be any good at investing.

For the rest of you, this paper suggests spending more time asking yourself why your answer could be wrong rather than gathering evidence that it is right or ignoring that which doesn’t fit.<sup>51</sup>

**Conclusion**

*The Seven Deadly Sins and the Four Last Things* is a painting by Hieronymus Bosch, completed in 1485. The painting is presented in a series of circular images. The Seven Deadly Sins are surrounded by four small circles; Judgement, Hell, Death and Glory.

As a portfolio constructor what can you take from this paper?

*Judgement*

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Inescapable in this industry, but must be exercised with conviction by investment managers and caution by those selecting managers. If you want active management look for concentration in portfolios, but expect your skilful manager to underperform (sometimes). Temper your short term view and allow them long enough to demonstrate the skill for which you selected them. John Maynard Keynes remarked as early as 1936 *'Investment based on genuine long-term expectations is so difficult to-day as to be scarcely practicable.'*<sup>52</sup> As owners of the capital you can dictate a change.

*Hell*

The tyranny of the benchmark, in which all investors lose out. If you want active management look for decisive positions away from the benchmark, without fillers (stocks where the manager has no view but is managing benchmark risk) based on long term (company specific, not sentiment driven) internally conducted fundamental research.

*Death*

Look for a manager to stand apart from the crowd and manager investment risk, not career risk. The following is a story attributed to Benjamin Graham illustrates the lemming like behavior of the crowd: *"Let me tell you the story of the oil prospector who met St. Peter at the Pearly Gates. When told his occupation, St. Peter said, "Oh, I'm really sorry. You seem to meet all the tests to get into heaven. But we've got a terrible problem. See that pen over there? That's where we keep the oil prospectors waiting to get into heaven. And it's filled—we haven't got room for even one more." The oil prospector thought for a minute and said, "Would you mind if I just said four words to those folks?" "I can't see any harm in that," said St. Pete. So the old-timer cupped his hands and yelled out, "Oil discovered in hell!" Immediately, the oil prospectors wrenched the lock off the door of the pen and out they flew, flapping their wings as hard as they could for the lower regions. "You know, that's a pretty good trick," St. Pete said. "Move in. The place is yours. You've got plenty of room." The old fellow scratched his head and said, "No. If you don't mind, I think I'll go along with the rest of 'em. There may be some truth to that rumor after all."*<sup>53</sup>

*Glory*

Outperform for long enough and they will call you an oracle. Why does the industry spend so much time and money seeking this elusive attribute? Nobody is sure whether Einstein was the first to highlight the power of compound interest, but lets finish with a simple example;

*Taking the average 35 year old with a current superannuation pot of \$50,000, ignoring 30 years of future contributions the difference between a CAGR (compound annual growth rate) of 9% and 12% is nearly \$840,000 at retirement.*

ENDNOTES

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- <sup>1</sup> Skill and luck can be difficult to distinguish – see Taleb, Nassim Nicholas. *The Black Swan*.
- <sup>2</sup> James Montier, *The Seven Sins of Fund Management, a Behavioural Critique*, DKW Global Research, 2005
- <sup>3</sup> Markowitz, Harry M. 1952. "Portfolio Selection." *Journal of Finance*, vol. 7 no. 1 (March): 77-91.
- <sup>4</sup> Hume, David. 1748. *Enquiry Concerning Human Understanding* (p55)
- <sup>5</sup> Greene, Brian. 2007. *The Fabric of the Cosmos*
- <sup>6</sup> de Finetti, Bruno. 1937 "La Prevision: Ses Lois Logiques, Ses Sources Subjectives." *Annales de L'Institut Henri Poincare*, vol. 7: 1-68. Translated (1964) in *Studies in Subjective Probability*. Edited by Henry E. Kyburg, Jr., and Howard E. Smokler. New York: John Wiley & Sons.
- <sup>7</sup> Soros, George. 2008. *The New Paradigm for Financial Markets*. New York: Public Affairs
- <sup>8</sup> Savage, Leonard J. 1954. *The Foundations of Statistics*. New York: John Wiley & Sons. – Markowitz's professor at the University of Chicago and a leading advocate of the subjectivist interpretation of probability.
- <sup>9</sup> Markowitz, Harry M. 1952. "Portfolio Selection." *Journal of Finance*, vol. 7 no. 1 (March): 77-91.
- <sup>10</sup> Black, Fischer; Myron Scholes (1973). "The Pricing of Options and Corporate Liabilities". *Journal of Political Economy* 81 (3): 637–654
- <sup>11</sup> Abraham de Moivre, *The Doctrine of Chances* (1738), Carl Friedrich Gauss (1794), Pierre-Simon Laplace, *Analytical Theory of Probabilities* (1812)
- <sup>12</sup> Mandelbrot, Benoit. *The (Mis)behaviour of Markets*.
- <sup>13</sup> Buffett, Warren. *Letter to Investors 2007*. Berkshire Hathaway
- <sup>14</sup> Fama, Eugene H. "The Behavior of Stock Prices." *Journal of Business*, Jan 1965.
- <sup>15</sup> Bill Miller, Legg Mason Value Trust
- <sup>16</sup> NYSE data
- <sup>17</sup> Seven Sins of Fund Management, 18 Nov 2005 James Montier Dresdner Kleinwort Wasserstein
- <sup>18</sup> Bogle (2005) *The Mutual Fund Industry 60 Years Later: For Better or Worse?* *Financial Analysts Journal*, 2005
- <sup>19</sup> CSFB study in turnover 2003
- <sup>20</sup> Benartzi, Shlomo, and Richard H. Thaler, 1995, "Myopic Loss-Aversion and the Equity Premium Puzzle," *Quarterly Journal of Economics* 110.1, pp. 73-92
- <sup>21</sup> Seven Sins of Fund Management, 18 Nov 2005 James Montier Dresdner Kleinwort Wasserstein
- <sup>22</sup> Gilmore and Kahn. *Active Portfolio Management* (1989)
- <sup>23</sup> Holton, Glyn A. 2004. Perspectives, Defining Risk. *Financial Analysts Journal*. vol. 60 no. 6 (Nov/Dec): 19-24
- <sup>24</sup> Benjamin Graham (Author), Jason Zweig (Author), Warren E. Buffett (Collaborator). *The Intelligent Investor: The Definitive Book on Value Investing. A Book of Practical Counsel (Revised Edition)*
- <sup>25</sup> Buffett, Warren. *Letter to Investors 2000*. Berkshire Hathaway
- <sup>26</sup> Quantitative Portfolio Strategies Group at Aberdeen Asset Management

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- <sup>27</sup> Buffett, Warren. *Letter to Investors 1993*. Berkshire Hathaway
- <sup>28</sup> Keynes, John M. *The General Theory of Employment, Interest and Money*. (1936)
- <sup>29</sup> Buffett, Warren. *Letter to Investors 2007*. Berkshire Hathaway
- <sup>30</sup> Buffett, Warren. *Letter to Investors 2007*. Berkshire Hathaway
- <sup>31</sup> Buffett, Warren. *Letter to Investors 2001*. Berkshire Hathaway
- <sup>32</sup> Philip A. Fisher (Author), Kenneth L. Fisher (Introduction). *Common Stocks and Uncommon Profits and Other Writings*. Wiley Investment Classics.
- <sup>33</sup> Buffett, Warren. General rules.
- <sup>34</sup> Mr Spock
- <sup>35</sup> See Mandelbort, Benoit, "The (Mis)behaviour of Markets" for a fractal critique which offer one possible framework to understand such lurches.
- <sup>36</sup> Millar, Ross. 2007. Measuring the True Cost of Active Management by Mutual Funds. *Journal of Investment Management*, vol. 5, no. 1: 29-49
- <sup>37</sup> Grinold and Kahn, *Modern Portfolio Management* (1989)
- <sup>38</sup> Keynes, John M. *The General Theory of Employment, Interest and Money*. (1936)
- <sup>39</sup> Frederick, Shane (2005). Cognitive reflection and decision making, *Journal of Economic Perspectives*, vo. 19, no. 4.
- <sup>40</sup> Answers: 5c, 5 minutes, 47 days
- <sup>41</sup> Lieberman, Gaunt, Gilbert and Trope (2002) Reflexion and reflection: a social cognitive neuroscience approach to attributional inference, in Zanna, *Advances in experimental social psychology*, vol. 34
- <sup>42</sup> Fredrick, S. *Cognitive Reflection and Decision Making* (2005)
- <sup>43</sup> J Montier Global Equity Strategy 2 Feb 2006
- <sup>44</sup> Nassim Nicholas Taleb's *Fooled by Randomness* (2004)
- <sup>45</sup> Russo, J Edward and Schoemaker, Paul. Sloan Management Review (1992)
- <sup>46</sup> Answers: 39 years, 4187 miles, 13 countries, 39 books, 2160 miles, 390,000 pounds, 1756, 645 days, 5959 miles, 36,198 feet
- <sup>47</sup> The key is that the question asks whether ANY two people share the same birthday.







# CONFERENCE

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<sup>52</sup> Keynes, John M. *The General Theory of Employment, Interest and Money*. (1936) Chapter 12.

<sup>53</sup> Wikipedia